

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
15 April 2004 (15.04.2004)

PCT

(10) International Publication Number
WO 2004/032289 A1

(51) International Patent Classification⁷: **H01R 13/635**,
G06K 7/00, 13/08, H05K 5/02

(21) International Application Number:
PCT/US2003/031617

(22) International Filing Date: 3 October 2003 (03.10.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
290656/2002 3 October 2002 (03.10.2002) US

(71) Applicant (for all designated States except US): **MOLEX INCORPORATED** [US/US]; 2222 Wellington Court, Lisle, IL 60532 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MATSUKAWA, Jun** [JP/JP]; Court-pal Kobayashi 307, 12-15 Chuo-rinkan 3-chome, Yamato-shi, Kanagawa 242-0007 (JP).

TOMITA, Mitsuhiro [JP/JP]; 6-5-719 Nishi-tsuruma 3-chome, Yamato-shi, Kanagawa 242-0005 (JP). **MATSUMOTO, Yasuyoshi** [JP/JP]; Heights-Ichikawa-Daisan #305, 12-19 Chuo 6-Chome, Yamato-shi, Kanagawa 242-0021 (JP). **YAMANE, Hiroshi** [JP/JP]; ** (JP).

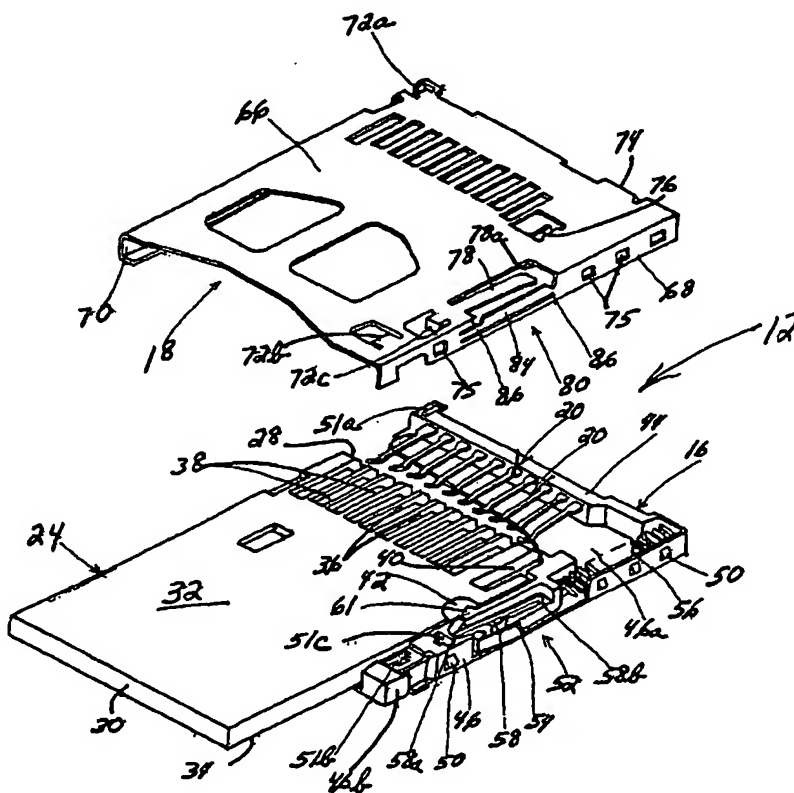
(74) Agent: **CALDWELL, Stacey, E.**; Molex Incorporated, 2222 Wellington Court, Lisle, IL 60532 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,

[Continued on next page]

(54) Title: MEMORY CARD CONNECTOR



(57) Abstract: A memory card connector has an interior cavity into which a memory card is inserted to a temporary retained position and then to a fully inserted position. The connector includes a n insulating housing having a rear terminal-mounting section at a rear of the cavity. A plurality of terminals are mounted on the terminal-mounting section and have contact portions for engaging contacts on the memory card. A slider is movably mounted on the housing and is engageable with the memory card for movement therewith. The slider is slidable along a side wall of the housing. The slider has a projection engageable in a recess in a side of the memory card. A sheet metal shell covers at least a portion of he insulating housing and includes a cover plate overlying at least a portion of the cavity. A side wall plate depends from the cover plate and overlies at least a portion of the side wall of the housing. A spring structure is stamped and formed out of an opening in the side wall plate and is engageable with the slider to bias the projection of the slider into the recess in the memory card. The spring structure is integral with the side wall plate at opposite edges of the opening.



SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Date of publication of the amended claims: 8 July 2004

Published:

- with international search report
- with amended claims

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

AMENDED CLAIMS

[received by the International Bureau on 10th May 2004 (10.05.04)]

1. A memory card connector (12) having an interior cavity (22) into which a memory card (24) is inserted to a temporary retained position and then to a fully inserted position, comprising:

an insulating housing (16) having a rear terminal-mounting section (44) at a rear of the cavity;

a plurality of terminals (20) mounted on the terminal-mounting section of the housing and having contact portions (20b) for engaging contacts (38) on the memory card;

a slider (52) movably mounted on the housing and engageable with the memory card (24) for movement therewith, the slider being slidable along a side wall (46) of the housing, and the slider having a projection (61) engageable in a recess (42) in a side of the memory card; and

a sheet metal shell (18) covering at least a portion of the insulating housing and including a cover plate (66) overlying at least a portion of said cavity (22), a side wall plate (68) depending from the cover plate and overlying at least a portion of the side wall of the housing, and a spring structure (80) stamped and formed out of an opening (82) in said side wall plate (68) and engageable with the slider (52) to bias the projection (61) of the slider into the recess (42) in the memory card, the spring structure (80) being integral with the side wall plate (68) at opposite edges of said opening (82).

2. The memory card connector of claim 1 wherein said spring structure (80) comprises a spring plate (84) which is elongated in the direction of movement of the slider (52) and memory card (24).

3. The memory card connector of claim 2 wherein said elongated spring plate (84) has opposite end sections (86) which are integral with the side wall plate (68) of the metal shell (18) within said opening (82).

4. The memory card connector of claim 4 wherein said elongated spring plate has a central section (84) between said opposite end sections (86), the central section being wider than the end sections.

2 5. The memory card connector of claim 1 wherein said slider (52) includes a contact surface (90a) opposing the side wall plate (68) of the metal shell (18) and generally parallel thereto and a pushing surface (90b) opposing the spring structure (80) of the metal shell.

2 6. The memory card connector of claim 5 wherein said pushing surface (90b) is oblique to said contact surface (90a) of the slider (52).

2 7. The memory card connector of claim 1 wherein said slider (52) includes an abutting surface (94) for engaging a front end (92) of the memory card (24).